

## **CALIFORNIA ENERGY COMMISSION Air Conditioner Diagnosis and Repair Project Summary**

### **Project Description:**

The majority of air conditioners on light commercial buildings and residences are running below their designed efficiency because of incorrect refrigerant levels and/or low airflow. This leads to wasted energy and higher energy bills. CheckMe!®, an on-site diagnostic and repair program, allowed the Energy Commission's contractor, Proctor Engineering, to tune up over 60% of the tested air conditioners. This saved customers an average of 17% in cooling costs through improved efficiency, and also reduced air conditioner demand.

The CheckMe!® program uses technician communication with a centrally operated, computer-based diagnostic program. A certified technician telephones test readings from a customer site to the CheckMe!® Call Center. In this call a computer expert system checks the data for errors, then diagnoses the status of refrigerant charge and airflow across the indoor coil. The technician then makes repairs and adjustments to the customer's equipment. After repair, the technician calls in a final set of test results to confirm all repairs are done correctly. HVAC Technicians performing the tests have immediate access to expert help throughout the program.



Customers receive a printed certificate of the results, transmitted from the central analysis center. This communication is listed as one of the highest causes for satisfaction in customer surveys.

### **Project Results:**

Through June 2003, the air conditioner tune-up process has been performed on over 36,900 small commercial

and residential air conditioners. The total peak reduction from those units was over 30 megawatts. Within the program the average cost was \$169 per kilowatt.

Only 35% of the commercial units and 43% of the residential units tested had correct refrigerant charge. When the CheckMe!® system was applied, the customers agreed to repairs over 84% of the time and the corrections were successfully completed 94% of the time.



**Funding Details:**

Over \$2,740,000 in incentives were distributed as a part of this program.

**Lessons Learned:**

Electronic collection of the critical data from the air conditioners allowed for systematic and timely quality assurance analysis. This was vital to the integrity of the program results. In some cases, data reported by HVAC technicians resulted in onsite visits to identify and correct problems. The system made it easy to quickly uncover flaws in technician readings and correct errors early. It also created a strong incentive for the contractor and the technicians to do the work correctly.

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